Appl. No. 10/651,449
Amdt. sent January 4, 2007
Reply to Office Action of October 4, 2006

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1   1.   (Currently amended) A method for detecting a position of an impulse

2 response in a multipath channel comprising:

3   (a) receiving a transmitted signal as a received signal, the received signal

4 comprising one or more reflected signals and a line-of-sight signal;

5   (b) correlating a representation of the received signal with a pseudo-random

6 number (PN) sequence to produce an evaluation signal, the PN sequence being used to produce

7 the transmitted signal, the evaluation signal comprising a plurality of peak values;

8   (c) identifying a first peak value from among the plurality of peak values;

9   (d) determining a position in the evaluation signal of the first peak value, wherein

10 the position is representative of time;

11   (e) determining a threshold value based on the evaluation signal;

12   (f) comparing the threshold value with one of the peak values to produce a

13 comparison result; and

14   (g) based on the comparison result, determining whether to:

15   produce a new evaluation signal based on the evaluation signal; and

16   repeat the steps (c) - (g) using the new evaluation signal,

17   wherein a plurality of first peak values are accumulated by the repetition of steps

18 (c)-(g),

19   wherein a position of an impulse response corresponds to the first peak value in

20 the plurality of first peak values whose associated time is the earliest[[.]],

21   wherein the first peak value with the earliest time represents the arrival time of the

22 line-of-sight signal.

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1 2. (Original) The method of claim 1 wherein the new evaluation signal is

2 produced by subtracting a template signal from the evaluation signal.

1 3. (Original) The method of claim 1 wherein the threshold value is based on

2 the peak values comprising the evaluation signal, exclusive of the first peak value.

1 4. (Original) The method of claim 1 wherein the threshold value is based on

2 a ratio between the first peak value and the other peak values comprising the evaluation signal.

1 5. (Original) Apparatus for identifying a position of an impulse response in a

2 multipath channel comprising:

3 a data processing unit; and

4 a memory component in data communication with the data processing unit, the

5 memory component containing a first memory configured with computer program code,

6 the computer program code configured to operate the data processing unit to

7 perform the method steps as recited in claim 1.

1 6. (Currently amended) A signal detection method comprising:

2 (a) receiving a transmitted signal as a received signal, the transmitted signal

3 comprising a first signal correlated with a pseudo-random number sequence, the first signal

4 representative of an information signal, the received signal comprising one or more reflected

5 signals and a line-of-sight signal;

6 (b) producing a matched signal from the received signal;

7 (c) correlating the matched signal with the pseudo-random number sequence to

8 produce a correlated signal, the correlated signal comprising a main lobe and a plurality of side

9 lobes;

10 (d) determining a peak value of the main lobe;

11 (e) determining a time value associated with the peak value of the main lobe;

12 (f) determining a threshold value based on the correlated signal; and

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13   (g) if <u>one of peak value of the main lobe and the plurality of side lobes exceeds</u>

14 <u>the threshold value</u> ~~the threshold value exceeds a value based on the side lobes~~, then subtracting

15 a template signal from the correlated signal to produce a new signal and repeating the steps (c) -

16 (g) with the new signal, wherein the threshold value is recomputed with each iteration of the

17 steps (c) - (g),

18   wherein a plurality of time values are produced <u>by the repetition of steps (c)-(g)</u>,

19 <u>and</u>

20   wherein the smallest of the time values represents the arrival time of the line-of-

21 sight signal.

1   7.   (Original) The method of claim 6 wherein the first signal is the

2 information signal.

1   8.   (Original) The method of claim 6 wherein the threshold value is based on

2 peak values of the side lobes.

1   9.   (Original) The method of claim 6 wherein the threshold value is based on

2 a ratio between the peak value of the main lobe and a peak value of each side lobe.

1   10.   (Currently amended) A signal detection processor comprising:

2   <u>(a)</u> means for receiving a digital signal, the digital signal representative of a

3 transmitted signal, the transmitted signal formed by correlating an information signal with a PN

4 sequence<u>, the digital signal comprising one or more reflected signals and a line-of-sight signal</u>;

5   <u>(b)</u> means for correlating the digital signal with the PN sequence to produce a

6 correlated signal;

7   <u>(c)</u> means for detecting a peak value in the correlated signal including associating

8 a time value representative of the position of the peak value in the correlated signal;

9   <u>(d)</u> means for determining a threshold value based on the correlated signal;

10   <u>(e)</u> means for producing a new correlated signal from the correlated signal; and

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11   (f) means for repeating [[the]]a process performed by the means (b)-(e) using the

12   new correlated signal, if a comparison of the threshold value with the correlated signal produces

13   a first comparison result,

14   thereby accumulating a plurality of peak values[[.]], and

15   wherein the smallest of the time values represents the arrival time of the line-of-

16   sight signal.

1   11.   (Currently amended) The processor of claim 10 wherein each of the

2   recited means [[are]] is provided as computer program code.

1   12.   (Currently amended) The processor of claim 10 wherein each of the

2   recited means [[are]] is performed on a data processing unit.

1   13.   (Original) The processor of claim 10 wherein the means for determining a

2   threshold is based on peaks in the correlated signal exclusive of the detected peak value.

1   14.   (Original) The processor of claim 10 wherein the means for producing a

2   new correlated signal includes subtracting a template signal from the correlated signal.